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## Psychosocial predictors of consistent condom use among women at risk of sexually transmitted disease: Comparing rasch and classical methods for item selection

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Rasch methodology (RM) provides an appealing alternative to classical test theory (CTT) in item selection. The purpose of this analysis was to compare these methods using data from a prospective study of women attending sexually transmitted disease clinics, who participated in a condom promotion program. Item selection using exploratory factor analysis (EFA) under CTT, and RM led to summary scores that were evaluated for consistency (Cronbach's  $\alpha$ ) and precision (standard error of measurement, SEM). Scores were used to model the odds of consistent condom use (CCU) at baseline and during a six-month follow-up period separately and compared model fit (Bayesian and Quasi-likelihood Information Criteria, BIC and QIC). RM identified one six-item attitude scale, one six-item communication scale and one four-item confidence scale ( $\alpha=0.7-0.9$ , SEM=0.11-0.20). The odds of CCU at baseline increased with a higher attitude (Unit OR=1.46, 95%CI: 1.29, 1.64) and self-efficacy scores (Unit OR=1.28, 95%CI: 1.13, 1.44) but not with communication. EFA identified two attitude factors (6 and 4 items), two communication factors (7 and 4 items), and one self-efficacy factor (5 items), all of which were associated with CCU at baseline and longitudinally. The models had similar fit for CCU at baseline ( $BIC_{RM}=1064$  vs.  $BIC_{CTT}=1066$ ) and during follow up ( $QIC_{RM}=3867$ ,  $QIC_{CTT}=3866$ ). In this analysis, 16 or 26 of 35 items collected adequately predicted CCU. RM employed fewer items to achieve the same predictive ability as CCT.

### Biography

Resmi Gupta is a Biostatistician in the division of Biostatistics and Epidemiology at Cincinnati Children's Hospital Medical Center. She has an MS in Biostatistics from the State University of New York at Buffalo and currently is a part time PhD student of Biostatistics at University of Cincinnati. Some of her research interest is related to item response theory and Rasch modeling, mixture distribution, generalized linear models, zero-inflated modeling.

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